

CLAIMS

What I claim is:

1 1. A composition for containing metal ions in an electronic device,
2 comprising:

3 an immobile particle; and

4 a chelating agent which is bonded to said immobile particle.

1 2. The composition according to claim 1, wherein said chelating agent
2 complexes with metal ions that leach out of metal sources within said electronic
3 device.

1 3. The composition according to claim 1, wherein said chelating agent
2 comprises one of an oxylate, ethylenediamine and ethylenediamine tetraacetate.

1 4. An electronic device having an integrated circuit with a composition for
2 containing metal ions, said composition comprising:

3 an immobile particle; and

4 a chelating agent which is bonded to said immobile particle.

1 5. The electronic device according to claim 4, wherein said composition is
2 contained within a scratch coat covering an active surface of said integrated
3 circuit.

1 6. The electronic device according to claim 4, further comprising:
2 a package, to which said integrated circuit is bonded.

1 7. The electronic device according to claim 6, wherein said composition is
2 contained within an encapsulant which is deposited over substantially an entire
3 surface of said integrated circuit and between said integrated circuit and said
4 package.

1 8. The electronic device according to claim 6, wherein said composition is
2 contained within an underfill which is deposited between said integrated circuit
3 and said package.

1 9. The electronic device according to claim 6, wherein said package
2 comprises an organic package and wherein said composition is contained within
3 said organic package.

1 10. The electronic device according to claim 6, further comprising:
2 a printed circuit board to which said package is bonded.

1 11. The electronic device according to claim 10, wherein said composition is
2 contained within an underfill which is deposited between said package and said
3 printed circuit board.

12. The electronic device according to claim 10, wherein said composition is contained within said printed circuit board.

13. The electronic device according to claim 10, wherein said composition is contained within a conformal coating which is deposited over said integrated circuit, said package and said printed circuit board.

14. A method of containing metals in an electronic product comprising:
bonding a chelating agent to an immobile particle to form a composite;
depositing said composite in close proximity to a metal source; and
using said chelating agent to capture metal ions which leach out of said metal source.

15. A composition consisting essentially of:
a chemically active moiety for chemically bonding with metal ions; and
a polymer which serves as an insoluble and immobile phase, to which said chemically active moiety is bonded.

16. The composition according to claim 15, wherein said chemically active moiety comprises a chelating agent.

17. The composition according to claim 15, wherein said metal ions comprise a variety of metal ions.

1 18. The composition according to claim 15, wherein said metal ions comprise
2 specific metal ions.

1 19. The composition according to claim 15, wherein said metals comprise one
2 of lead, antimony, bismuth and indium.

1 20. The composition according to claim 15, wherein said chelating agent
2 comprises a plurality of chelating agents.

1 21. The composition according to claim 15, wherein said composition is
2 contained within a dielectric phase of an electronic device.

1 22. The composition according to claim 15, wherein said composition is
2 contained within an active surface protectant for an integrated circuit.

1 23. The composition according to claim 22, wherein said active surface
2 protectant comprises a scratch coat protectant.

1 24. The composition according to claim 15, wherein said composition is
2 contained within a die/chip protectant.

1 25. The composition according to claim 24, wherein said die/chip protectant
2 comprises an encapsulant dielectric.

1 26. The composition according to claim 15, wherein said composition is
2 contained within an underfill dielectric.

1 27. The composition according to claim 26, wherein said underfill dielectric is
2 used in flip chip bonding.

1 28. The composition according to claim 15, wherein said composition is
2 contained within an integrated circuit package organic dielectric.

29. The composition according to claim 28, wherein said organic dielectric
comprises one of epoxy, polyimide, polytetrafluoroethylene laminate materials
and epoxy molding compounds.

30. The composition according to claim 15, wherein said composition is
contained within a package level underfill dielectric.

1 31. The composition according to claim 30, wherein said package level
2 underfill dielectric comprises BGA underfill material.

1 32. The composition according to claim 15, wherein said composition is
2 contained within a printed circuit board dielectric material.

1 33. The composition according to claim 32, wherein said printed circuit board

2 dielectric material comprises epoxy, polyimide, polytetrafluoroethylene laminate
3 materials and epoxy molding compounds.

1 34. The composition according to claim 15, wherein said composition is
2 contained within a conformal coating dielectric.

1 35. The composition according to claim 34, wherein said conformal coating
2 dielectric comprises an immersion coating for an electronic device.

1 36. The composition according to claim 15, wherein said chemically active
2 moiety comprises one of an oxalate, ethylenediamine and ethylenediame
3 tetraacetate.

1 37. The composition according to claim 15, wherein said chemically active
2 moiety comprises more than one of an oxalate, ethylenediamine and
3 ethylenediame tetraacetate.